

What is Claimed is:

1. A manufacturing method of a thin film magnetic head comprising following steps of:  
    preparing an upper magnetic core,  
    covering an end portion of said upper magnetic core  
5     with a non-magnetic protective film,  
    removing said non-magnetic protective film from an upper part until said upper magnetic core is exposed,  
    wherein a front end of a connection area in which  
    said end portion is connected to a rear portion of said  
10    upper magnetic core is located between a face opposed to a medium and a position defining the gap depth.

2. A manufacturing method of a thin film magnetic head according to claim 1, wherein said non-magnetic protective film is removed by a polishing process or an  
15    etch-back process using dry etching.

3. A manufacturing method of a thin film magnetic head according to claim 1, wherein said non-magnetic protective film is removed by using one or more kinds of gases selected from  $\text{CF}_4$ ,  $\text{C}_4\text{H}_8$ ,  $\text{CH}_3$ ,  $\text{BCl}_3$ ,  $\text{Cl}_2$ ,  $\text{SiCl}_4$ ,  $\text{Ne}$ ,  $\text{Ar}$ ,  
20     $\text{Kr}$ , and  $\text{Xe}$ .